UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/781,012	02/10/2001	Rajesh Pankaj	000475	6434

23696 7590 12/19/2005

QUALCOMM, INC
5775 MOREHOUSE DR.
SAN DIEGO, CA 92121

EXAMINER	
MOORE, IAN N	

ART UNIT	PAPER NUMBER
2661	

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/781,012	PANKAJ ET AL.	
	Examiner	Art Unit	
	Ian N. Moore	2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-11,14-22,25,26,31,32,34,35,37 and 39-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-9,11,14-16,19-22,25,26,31,32,34,35,37,39-42,44 and 45* is/are rejected.

7)☒ Claim(s) *10,17,18 and 43* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 February 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because there is a lack of descriptive legends in **FIG. 1, 4A, 4B, 5A, and 5B**. [37 CFR 1.83, CFR 1.84 [5(e)], MPEP § 608.02(e)]

Claim Objections

2. Claims 1, 31, 35, 37 and 43 are objected to because of the following informalities:

Claim 1 recites, "...**assigning a codeword to the message**, the codeword being selected from an alphabet of a plurality of codewords, **a minimum distance of the codeword**..." in line 6-7 (emphasis added). It is unclear whether the step "assigning a codeword to the message" is associated/related to "a minimum distance". Another word, there is no associating/linking between **an assigned codeword** is a codeword with a minimum distance to its nearest codeword.

Claim 31, 35 and 37 are also objected for the same reason as set forth above in claim 1. Appropriate correction is required.

Claim 43 is missing a period "." in line 4.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1,2,3,7,9,11,14,16,21,31,32,34,35,37,39-40,42, and 45 rejected under 35 U.S.C. 103(a) as being unpatentable over Niemela (US 6,452,914) in view of Hosur (US006891882B1).

Regarding Claims 31, 35 and 37, Niemela discloses an access terminal in a wireless communication system (see FIG. 2, MS or BTS in radio system), comprising:

a receiver (see FIG. 2, a receiver of MS 4, or a receiver of BTS 2; see FIG. 6, a receiver; see col. 5, lines 40-56) configured to receive a signal from an access network (see FIG. 2, a radio interface/network, Um) and determine at least one characteristic of a communication link through which the signal is received (see col. 4, lines 11-46; determining power levels of a received signal in a radio link);

a data processor (see FIG. 5-6; a combined processing means 101-104 or 202-205) configured to form a message indicative of a state of the communication link (see FIG. 1, burst message for power control) and assign a codeword to the message (see FIG. 3a-b and 4; codewords 1-7 or 1-8), the codeword being selected from an alphabet of a plurality of codewords (see FIG. 3 and 4, codewords 1-7 or 1-8; see col. 4, lines 50 to col. 5, lines 4), a minimum distance (see col. 5, lines 5-25; a codeword with minimum distance) of the codeword in the alphabet being associated with the state of the communication link (see col. 4, lines 54 to col. 5, lines 5; codeword is determined according to the power control process/state of the radio link); and

a transmitter unit (see FIG. 2, a transmitter of MS 1, or a transmitter of BTS 3; see FIG. 5, a transmitter; see col. 5, lines 25-37) configured to transmit the message (see FIG. 1, burst message) at a particular power level determined based at least in part on the message (see col. 4, lines 10-46).

Niemela does not explicitly disclose its nearest codeword. However, detection and selection a codeword that has a minimum distance is well known in the art. Hosur teaches the codeword being selected from an alphabet of a plurality of codewords (see col. 4, line 39-64; codeword selected/choose from an alphabet of a list of codewords), a minimum distance of codeword to its nearest codeword in the alphabet (see col. 6, line 15-36, see col. 7, line 1-15; choosing/selecting a codeword with a minimum distance to its closet codeword). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide nearest codeword, as taught by Hosur in the system of Niemela, so that it would increase SNR factors which relates to the minimum distance, and it would provide efficient decoding; see Hosur see col. 3, line 5-21; col. 6, line 15-35.

Regarding claims 32 and 45, Niemela discloses an access terminal (FIG. 2, MS or BTS) in a wireless communication system (see FIG. 2, digital radio system), comprising:

a data processor configured to identify (see FIG. 5-6, a combined processing means 101-104 or 202-205) a codeword associate with message (see FIG. 1, 3a-b and FIG. 4, a codeword in a message; see col. 4, lines 12 to col. 5, lines 5), wherein the identified codeword is one of a plurality of codewords (see FIG. 3 and 4, codewords 1-7 or 1-8) defined for an alphabet (see FIG. 3 and 4, a group of 7 codewords or a group of 8 codewords; note that a group of codeword is determined according to the power control process, steps and C/I ratio; see col. 4, lines 54 to col. 5, lines 5), and wherein at least two codewords in the alphabet (see FIG. 3b, codeword 1 and 2 of the group codeword) have unequal distances to their nearest codewords (see col. 5, lines 5-15; note that codewords in the group of codeword have various/unequal/minimum Hamming distances),

the data processor further configured to determine a transmit power level for identified codeword (see FIG. 3a-b, 4; power levels of +4 dB, +2 dB, 0dB, and etc. for a specific codeword), based at lease in part on a distance of the identified codeword in the alphabet (see col. 4, lines 46 to col. 5, lines 15); and

a transmitter unit (see FIG. 5, RF 105 and antenna 106) operatively coupled to the data processor and configured to transmit the identified codeword at the determined transmit power level (see col. 4, lines 10-46; col. 5, lines 5-39; 105 and 106 transmit the identified codeword at determined power level in accordance with tables in FIG. 3 a-b and FIG. 4).

Niemela does not explicitly disclose its nearest codeword. However, detection and selection a codeword that has a minimum distance is well known in the art. Hosur teaches the codeword being selected from an alphabet of a plurality of codewords (see col. 4, line 39-64; codeword selected/choose from an alphabet of a list of codewords), a minimum distance of codeword to its nearest codeword in the alphabet (see col. 6, line 15-36, see col. 7, line 1-15; choosing/selecting a codeword with a minimum distance to its closet codeword). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide nearest codeword, as taught by Hosur in the system of Niemela, so that it would increase SNR factors which relates to the minimum distance, and it would provide efficient decoding; see Hosur see col. 3, line 5-21; col. 6, line 15-35.

Regarding Claim 1, a method claim which that substantially discloses all the limitations of the respective apparatus claim 31 with transmitting the first entity (see FIG. 2, MS or BTS; or see FIG. 6, a receiver/transmitter; see col. 5, lines 25-56) to a second entity (FIG. 2, BTS or MS;

or see FIG. 5, a transmitter/receiver; see col. 5, lines 25-56). Therefore, it is subjected to the same rejection.

Regarding Claim 11, a method claim which that substantially discloses all the limitations of the respective apparatus claim 32 with transmitting the first entity (see FIG. 2, MS or BTS; or see FIG. 6, a receiver/transmitter; see col. 5, lines 25-56) to a second entity (FIG. 2, BTS or MS; or see FIG. 5, a transmitter/receiver; see col. 5, lines 25-56). Therefore, it is subjected to the same rejection.

Regarding Claims 3 and 39, Niemela discloses wherein the power level is determined based at least in part on the minimum distance of the codeword (see col. 5, lines 5-15).

Regarding claims 7 and 40, Niemela discloses the at least one characteristic as comprises a carrier-to-noise-plus interference ratio (C/I) (see FIG. 4, C/I; see col. 5, lines 1-5, 63 to col. 6, lines 6).

Regarding Claims 9 and 42, Niemela discloses wherein the minimum distance of the codeword is based at least in part on a signal quality of the communication link (see col. 4, lines 20-251 34-37; col. 5, lines 1-5; based on channel quality).

Regarding Claim 14, Niemela discloses wherein the transmit power level for the identified codeword is determined to achieve a particular level of performance (see FIG. 3a-b and 4; see col. 4, lines 50-67; codeword for power control).

Regarding claims 16, Niemela discloses the message to be transmitted is one of a plurality of possible messages (see FIG. 1, a normal burst, note that shown normal burst is one the plurality of possible normal burst that is transmitted between MS and BTS), and wherein the plurality of codewords in the alphabet (see FIG. 3 and 4, codewords in a group shown in FIG. 3a,

3b and 4) are assigned to the plurality of possible messages in accordance with a particular assignment scheme (see FIG. 1, DS; see FIG. 3 and 4; note that codewords in that each group of codeword is assigned to each burst message according to the particular power control scheme, such as increase or decrease or normal; see col. 3, lines 20-40 and col. 4, lines 46 to col. 5, lines 26).

Regarding Claim 21, a method claim which that substantially discloses all the limitations of the respective apparatus claim 32 wherein the first entity comprises an access terminal in the wireless communication system (see FIG. 2, MS or BTS; or see FIG. 6, a receiver/transmitter; see col. 5, lines 25-56). Therefore, it is subjected to the same rejection.

Regarding claim 34, Niemela discloses a signal quality measurement unit configured to receive samples for a received signal (see FIG. 6, processor 203 of receiver 203 which has a capability of estimation received signal quality Qdl; also see FIG. 2, block 1, col. 2, lines 20-25; note that MS's processor 203 receives digitized samples from A/D 202) and to determine a received signal quality of signals transmitted from one or more transmitting sources (the processor estimates the received signal quality from BTS), and

wherein the transmit power level is associated with the received signal quality of a transmitting source to which the identified codeword is transmitted (see FIG. 3 and 4, codewords and see FIG. 5, processing means 103 and conversion means 104; see FIG. 2, see col. 4, lines 12-34 and see col. 5, lines 39-64; the transmitter sends the power control command with the identified codeword to the receiver based on the estimation of received power quality levels).

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Niemela (US 6,452,914) in view of Hosur, and further in view of Weaver (U.S. 5,715,526).

Regarding claim 4, the combined system of Niemela and Hosur discloses wherein the power level is determined based at least in part on the codeword being transmitted as described above in claim 1.

Neither Niemela nor Hosur does explicitly disclose an expected frequency. It is well known in the art of wireless communication that, the frequency is reused by way of cells or sectors in order to utilized the allowable bandwidth provisioned by FCC, and MS operates within the expected and allowable frequency range, 850 MHZ for cellular and 1900 MHz for PCS. Thus, it is clear that determination of signal power is based upon expected frequency. Moreover, Weaver discloses wherein the power level is determined based at least in part on an expected frequency (see col. 5, lines 55-65; calculating the power base on new/expected frequency transmit signal).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide an expected and allowable frequency in wireless network, as taught by well established teaching in art and/or Weaver in the combined system of Niemela and Hosur, so that it can accurately controls the transmit power level of a base station signal; see Weaver col. 5, line 35-47; also by determining the power according to expected and allowable frequency, it will enable the conformance of FCC regulation and increase the efficient bandwidth utilization of reusing expected allowable frequency.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Niemela (US 6,452,914) in view of Hosur, and further in view of Cho (U.S. 6,049,633).

Regarding claim 5, the combined system of Niemela and Hosur discloses the power level is determined based at least in part on the codeword for a transmission as described above in claim 5.

Neither Niemela nor Hosur explicitly discloses repeated for a particular number of times. However, Cho teaches determining based at least in part on a particular number of times the selected codeword is repeated (see FIG. 4D, code words 0,1,01 and 10; see col. 8, lines 16-57; note that as shown in table 130, the determining and processing a plurality of symbols codes at a time based upon the count of codeword is determined based upon number of time a selected code word (i.e. 0, 1, 01, 10 or 11) is counted and repeated; see col. 1, lines 41 to col. 2, lines 25).

In view of this, having the combined system of Niemela and Hosur, then given the teaching of Cho, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Niemela and Hosur, for the purpose of determining and processing a plurality of symbol codewords based upon count of the codewords, as taught by Cho'633 as stated in col. 1, lines 35-40 and col. 2, lines 15-25, that it will provide an adaptive arithmetic coding scheme capable of processing a group of symbols at a time, and by utilizing a codeword table and corresponding count values to encode/decode data in a group of codes at a time, it will increase the speed of real-time data processing.

7. Claims 6, 8, 20 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niemela (US 6,452,914) in view of Hosur and further in view of Komaili (U.S. 2003/0003446A1).

Regarding claim 6, 20 and 41, the combined system of Niemela and Hosur discloses the first entity transmitting the message to second entity as described above in claims 1, 11, 31.

Neither Niemela nor Hosur explicitly discloses a message indicative of a rate for a data transmission requested. In particular, Komaili'446 teaches the message is a data rate control message indicative of a rate for a data transmission requested from the second entity (see FIG. 7, steps 702-724; note that in step 702, MS receipt a frame/message with soft-coded rate bits from the BS. The MS sets the vocoder rate according to the requested rate from BS (step 706) and transmits the frame back to BS (step 712); see page 9, paragraph 99-103).

In view of this, having combined system of Niemela and Hosur, then given the teaching of Komaili'446, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Niemela and Hosur, for the purpose of MS sending a message frame of a data rate for a data transmission requested from BS, as taught by Komaili'446 as stated in page 1, paragraph 10-13, that it will provide a reliable communication between the MS and BS. The motivation being that by adjusting the rate between MS and BS in response to level of interference, it will increase the reliability of the network by providing best possible speech quality.

Regarding claim 8, Niemela discloses a message is selected from a plurality of data rate control messages (see col. 4, lines 1-46). Komaili'446 teaches the message is a data rate control message (see FIG. 7, steps 702-724; note that in step 702, MS receipt a frame/message with soft-

coded rate bits from the BS. The MS sets the vocoder rate according to the rate from BS (step 706) and transmits the frame back to BS (step 712); see page 9, paragraph 99-103).

In view of this, having combined system of Niemela and Hosur, then given the teaching of Komaili'446, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Niemela and Hosur, for the purpose of MS sending a message frame of a data rate for a data transmission, as taught by Komaili'446 as stated in page 1, paragraph 10-13, that it will provide a reliable communication between the MS and BS. The motivation being that by sending and adjusting the data rate between MS and BS in response to level of interference, it will increase the reliability of the network by providing best possible speech quality.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Niemela in view of Hosur, and further in view of Salvarani (U.S. 6,760,597).

Regarding claim 15, the combined system of Niemela and Hosur discloses a particular level of performance as recited in above claim 14.

Neither Niemela nor Hosur explicitly disclose one percentage frame error rate. However, Salvarani discloses one percentage frame error rate (see col. 3, lines 30-35; target 1% FER). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide 1% FER, as taught by Salvarani in the combined system of Niemela and Hosur, so that it would increase reliability of network while maintaining the quality imposed by the network and reliable method which comply with target FER without affecting

power control information being conveyed over the at least one reliable link; see Salvarani col. 10, line 19-35.

9. Claim 19, 25,26, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niemela in view of Hosur, and further in view of Halford (US 6,614,836).

Regarding claim 19, Niemela wherein the alphabet includes N codewords (see FIG. 3 and 4, codewords 1-8 or 1-7) having minimum distances (see col. 5, lines 5-20).

Neither Niemela and Hosur explicitly disclose minimum distance of d.sub.1 through d.sub.N, and wherein the minimum distances conform to the d1>= d2>=...>=dN-1>=dN and d1>dN. However, Halford'836 discloses minimum distance of d.sub.1 through d.sub.N, and wherein the minimum distances conform to the d1>= d2>=...>=dN-1>=dN and d1>dN (FIG. 5, where distance d1, d2, d3 and d4 and the minimum distance d4>d1, where S1-S4 are the codeword signal (i.e. S1) has a minimum distance (i.e. d1); see col. 5, lines 40-65).

In view of this, having the combined system of Niemela and Hosur, then given the teaching of Halford'836, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Niemela'914 and Hosur, for the purpose of providing the selected codeword signal has the minimum distance, as taught by Halford'836, since Halford'836 states the advantages/benefits at see col. 3, lines 30-67 and see col. 5, lines 35-40 that it would provide optimal minimum distance receiver with improved performance by incorporating energy into receiver decision. The motivation being that by examining the distortion effects of multi-path channel by utilizing the distances on the signal received, it will improve the bias-corrected receiver.

Regarding claim 25, 26 and 44, the combined system of Niemela and Hosur discloses the plurality of codewords in the alphabet are associate in a signal constellation (see FIG. 3 and 4, a group of message, with related/associated to a group of codeword) and wherein at least two points in the signal constellation have unequal distances to their nearest codewords as described in claim 23.

Neither Niemela nor Hosur explicitly disclose plurality of codewords are associate with a plurality of points in a signal constellation selected from points in signal constellation for QPSK. Halford plurality of codewords are associate with a plurality of points in a signal constellation selected from points in signal constellation for QPSK (FIG. 5, S1-S4 are the codeword signal (i.e. S1) and their associate points in QPSK constellation; see col. 5, lines 40-65).

In view of this, having the combined system of Niemela and Hosur, then given the teaching of Halford'836, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Niemela'914 and Hosur, for the purpose of associating relating signal codewords with points in QPSK constellation, as taught by Halford'836, since Halford'836 states the advantages/benefits at see col. 3, lines 30-67 and see col. 5, lines 35-40 that it would provide optimal minimum distance receiver with improved performance by incorporating energy into receiver decision. The motivation being that by examining the distortion effects of multi-path channel by utilizing the distances on the signal received, it will improve the bias-corrected receiver.

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Niemela in view of Hosur, and further in view of Lundh (US 6,718,180).

Regarding claim 22, the combined system of Niemela and Hosur discloses the wireless communication system as described above in claim 11.

Neither Niemela nor Hosur explicitly disclose CDMA system. However, the above-mentioned claimed limitations are taught by Lundh'180. In particular, Lundh'180 teaches a CDMA system (see FIG. 1-10, a CDMA system; see col. 4, lines 40-53; see col. 1, lines 20-50).

In view of this, having the combined system of Niemela and Hosur, then given the teaching of Lundh'180, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Niemela and Hosur, for the purpose providing power control in CDMA system, as taught by Lundh'180 as stated in see col. 1, lines 30-40, col. 2, lines 1-30, that it will balance the transmit power between MS and BS which is important to CDMA system. The motivation being that by utilizing balance power control mechanism in the CDMA system, it will increase the reliability of the network while reducing the interference between MS, other MS and BS.

Response to Arguments

11. Applicant's arguments, see page 9, filed 8/19/2005, with respect to claims 17 and 43 have been fully considered and are persuasive. The rejections of claims 17 and 43 have been withdrawn.

12. Applicant's arguments with respect to claims 1-6,8,9,11,14,21-22,31-32,34-35, 37, and 39-42,44-45 have been considered but are moot in view of the new ground(s) of rejection.

Regarding claims 1, 11, 31,32,35, 37, 45, the applicant argued that, "...Niemela is silent with respect to how codewords are assigned to the signaling message in any of the tables..." in page 9, paragraph 3.

In response to applicant's argument, the examiner respectfully disagrees with the above. Niemela discloses assign a codeword to the message (see FIG. 3a-b and 4; codewords 1-7 or 1-8), the codeword being selected from an alphabet of a plurality of codewords (see FIG. 3 and 4, codewords 1-7 or 1-8; see col. 4, lines 50 to col. 5, lines 4), a minimum distance (see col. 5, lines 5-25; a codeword with minimum distance) of the codeword in the alphabet being associated with the state of the communication link (see col. 4, lines 54 to col. 5, lines 5; codeword is determined according to the power control process/state of the radio link). Hosur teaches the codeword being selected from an alphabet of a plurality of codewords (see col. 4, line 39-64; codeword selected/choose from an alphabet of a list of codewords), a minimum distance of codeword to its nearest codeword in the alphabet (see col. 6, line 15-36, see col. 7, line 1-15; choosing/selecting a codeword with a minimum distance to its closet codeword). Thus, it is clear that combined system of Niemela and Hosur discloses the above argued and claimed limitation.

Moreover, the art of selecting/choosing a codeword having a minimum distance of the codeword to its nearest codeword in the alphabet is well know and established in the art as disclosed by the following prior arts.

- **Sriram** (US006226315B1)- summary; see col. 5, line 1-40.
- **Hassan** (US006031913A)- see FIG. 3, summary; see col. 8, line 1-50.
- **Calderbank** (US006115427A)- see FIG. 6, 10; summary; see col. 8, line 24 to col. 10, line 35-67.

Allowable Subject Matter

13. **Claim 10,17, 18 and 43** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N. Moore whose telephone number is 571-272-3085. The examiner can normally be reached on 9:00 AM- 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

INM
11-21-05

CHAU NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600